1: Gifford E-4,5 (1920-1921) 1929 OU9 Tonga OU9

A chief's son was never operated on alone but always with companions. There was no special tapu connected with operating on a chief's son.

The man performing the operation was called *faikaukau* or *faitefe*. He was not a chief's appointee. The only factor in determining who could be an operator was skill, involving such factors as a cool head, steady hand, previous experience, and that type of personality that tends to inspire confidence. The operator would never be the initiate's brother or cousin, but might be his father, uncle, or any other elderly man reputed for skill in the community. An informal council of interested fathers selected the operator who was to officiate.

Preceding the operation the boys bathed themselves thoroughly in the sea. This bath was called *fufulu*. After drying on a tapa towel, they were brought one at a time to the place of operation. This was usually situated outdoors under a large shady tree, the species of tree being of no importance. The spectators were the adult male relatives of the initiates. The rock, mat or large tree root on which each boy sat naked is called *hekeheka*. The operator sat on the ground in front of the boy in the usual tailor fashion of Tongan men.

The cutting instrument now used is a razor. Formerly it is said to have been a bamboo knife or sharp shell. A piece of unprinted or uncolored tapa (*fetaaki*) is now wrapped round and round the razor blade, leaving only the tip of the blade exposed. The following is a description of the operation:

> A piece of bamboo was placed over the head of the penis, the foreskin drawn down over this, then the operator, with one quick stroke of the razor, or more if necessary, slit the foreskin throughout its entire superior length.
>
> Then the operator chewed the leaves of a fern called *laufale* and squeezed some of the juice of the masticated plant on to the incision. The cut foreskin being doubled back around the medial portion of the penis was wrapped with the leaves of *kavakavaulie* from which the large fibers had been extracted. The whole was well bandaged with unprinted tapa. A girdle of this material was passed about the waist and between the legs to hold the penis against the belly. The wound was dressed twice daily.
>
> The boys, having all been operated on, were confined in a house together. No one might visit them, but their adult male relatives. Food was brought to them. They could leave the house only to defecate and urinate. The operator instructed them in the tapus they were to follow. They were told not to think of women. If one suffered from erection, he pulled hard at a piece of rope (called *tukutaopeanga*) suspended from the rafters and the erection left him. Other tapus forbade the eating of anything sweet, the drinking of anything but water, and only one cup of that a day, the eating of anything red, at the present day the eating of any tinned goods, the taking of a bath for five days and nights, and the performance of any heavy work or walking.
>
> In urinating the patient squatted down on his left knee, the right knee high, the body bent low over the right knee, the weight of the body supported by the right hand, while with the left hand he served himself. This position prevented the urine from running back on to the erectly held penis. If it should run back on to the penis, a swelling is said to have resulted. This caused extreme pain and even loss of life. It was called *mimi* and the squatting position described above was called *mimifakatafitafi*.

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On the morning of the sixth day the boys went out and bathed in the ocean. This bath was called *kaukautapu*. Each boy took off his own bandages and bathed without anyone's aid. When they returned to the shore the operator and two assistants met them and redressed and bandaged the boys in the same fashion as formerly. This bandage is said to have had no name other than *lalava*, or *kaikai*.

There followed a big feast, although the operator was furnished free food throughout the period. All the women ate by themselves; the men ate with the boys. The tapu was lifted and this fact was announced to each boy by his father or male guardian. A present of oven products (food), mats, tapa, and other materials was assembled by the fathers of the boys and presented to the operator. Other ovens were opened for the general feast in honor of the boys. No present was given them. Even if a boy died from the operation, as sometimes occurred, the father of this boy contributed his share to the present for the operator. The boy was always believed to have died because he broke some one of the tapus. After this feast, the tapus were resumed for four more days and nights. Bandages, like the first, were worn for two weeks after this feast. The tapus are said to have had no names.

MARRIAGE

Collocott (12) has published a brief account of marriage in Tonga, but it seems worth while to present my data here, as they are fuller in some particulars.

Marriages are classified as *feofaaki* (for love), *aleai* (arranged) and *fatongia* (duty), this last term applying only to cross-cousin marriages. To marry two wives at one and the same time is called *hamaua*.

Wilson (66, p. liv) states:

> Polygamy is established, but adultery is punished with death.
> The lascivious practices which are almost universal there [Georgian Islands] seem to be usually restricted here to common prostitutes of the lowest class.

The Tongan term for prostitute is *muitau*. It is perhaps to such a person that the term *finelangatotoa* (a woman who steals home from her paramour's house before the break of day) would be also applied.

The principal relative concerned with marriage plans of young people is the father's sister. She may often take upon herself the ordering of the marriage arrangements of her brother's children and may veto their plans of marriage and impose her own. A girl destined to become the wife of a chief wears two long tresses, one on each side of her head.

As mentioned by Collocott (12, p. 222) an oven of food (*veifua*) is presented to the bride by her brother.

The sororate (*tongipou*), following the death of the wife, was practiced in Tonga but the levirate was said to be infrequent. Cross-cousin marriage of a man to his mother's brother's daughters was common among chiefs, but rare among commoners. A girl who becomes the bride of her cross cousin is denoted by the term *kititama*. Marriage to identical cousins was regarded as improper. The only such marriage recorded was on Ata Island where were also a considerable number of cross-cousin marriages

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The king and his army being arrived at their fortress, the sixty bodies were shared out to the different gods that had houses dedicated to them within the place. In performing this ceremony the people formed a large circle on the ground, with the king at the upper end. The bodies being placed in a row before Finow, a man rose up, and counting the bodies, declared aloud their number. The king then ordered that so many should be allotted to such a god, and so many to such another, and so of the rest. The names of these gods were Tali y Toobo, Tooi fooa Bolotoo, Lau file Tonga, Toobo lalo Tonga, and Chenitacala: the two first only are imaginary beings, the others are souls of departed chiefs; the last of all is a goddess, the soul of a female chief of that name. This being done, the bodies were carried away, and laid before the houses of the different gods to whom they were allotted: where, after they had remained three or four hours, those who had left relations among the garrison of Neafoo were carried away and buried; and the remainder, which were only nine or ten in number, were conveyed to the water side, and there disposed of in different ways: two or three were hung up on a tree; a couple were burnt; three were cut open from motives of curiosity to see

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whether their insides were sound and entire*, and to practise surgical operations upon, hereafter to be described; and lastly, two or three were cut up to be cooked and eaten, of which about forty men partook. This was the second instance of cannibalism that Mr. Mariner witnessed, but the natives of these islands are not to be called cannibals on this account: so far from its being a general practice, it is on the contrary generally held in abhorrence, and where it is occasionally done, it is only by young warriors, who do it in imitation of the Fiji islanders, attaching to it an idea that there is something in it designating a fierce, warlike, and manly spirit. When they returned to Neafoo after their inhuman repast, most persons who knew it, particularly women, avoided them, saying, "Iá-whé moe ky-tangata," away! you are a man-eater.

The bodies being thus all disposed of, Finow began to make enquiries respecting the alleged treason of Lioofau, and finding no one capable

* It is a firm belief with the people that if a man infringes upon the *Taboo* (see p. 141) or commits any sacrilege, his liver or some other viscus is liable to become enlarged and schirrous: they therefore often open dead bodies out of curiosity, to see if they have been sacrilegious in their lifetime. The natives of these islands are particularly subject to schirrous tumours.

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which lasted about three quarters of an hour; when they again took shelter within their walls. In the first engagement the enemy had forty men killed, and Finow only two: in the last attack they had only one man killed, and Finow none, though several died afterwards of their wounds; but this was only an engagement with arrows and spears, which they are very dexterous in avoiding: clubs were not used; for the enemy were upon a higher ground, and it would not have been prudent to have attacked them with the club, and risk the loss of their former advantages; and the enemy were too much discouraged to venture into the plain for this purpose. The day was so rainy that no muskets could be well used. In the last affair Mr. Mariner received an arrow in his foot, which passed quite through the broadest part of it: luckily it was not a bearded arrow; but the wound was, nevertheless, a very bad one; for the weapon being made of a short, splintering wood, it broke in, and consequently he was afterwards disabled for several months; for the Tonga surgeons have not the best instruments in the world, and the pieces of wood they took out from time to time, by no better means than cutting down upon them with sharp shells, or bamboo; which rendered the affair very tedious and painful.

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cocoa-nut trees in abundance; the soil is also highly favourable for the cultivation of yams, which grow there larger than in most other places. The water which terminates it at one end is noted for the vast abundance of a peculiar fish which resort to the shores of Vavaoo about the month of July. This fish they call *Ooloo Caoo*, and is about the size of the common sprat, and of much the same shape and hue. The common people consider it a great delicacy, but there is considerable danger of being poisoned by eating them promiscuously, for here and there is found one which, on eating, produces the most alarming and sometimes the most fatal effects*; and as there is no mark by which these poisonous ones may be known, it is always dangerous to eat of them, unless they be procured in the rocky bay of this plantation, where, they say, they never found any poisonous, and therefore partake of them without any reserve: the chiefs however seldom touch them, unless perhaps there is a scarcity of other fish. The time when they are best and in the greatest plenty is in the latter end of the

* The symptoms produced are headach, nausea, vomiting, and diarrhœa, with violent pains in the bowels, to which death generally succeeds in the course of four or five hours. The only remedy they use (which very seldom succeeds) is to cause the patient to drink abundantly of water, or, what is considered still better, the milk of young cocoa-nuts.

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527 man may take an active part, if he feels himself
526 at all so disposed. In these encounters they
164 frequently get their arms broken; but this
752 gives no one any concern, scarcely even the
527 party who suffers, who immediately gets it set
526 by any one in the company, (and they are all tolerably expert at this from frequent practice,) and bound up with bandages of *gnatoo*, using splints made from the cocoa-nut tree.

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727 669 greatest respect, he said, for Finow's family; but he could not help it if some of his chiefs (as on the late occasion) made attacks upon Vavaoo, for want of other employment. One of the warriors who had been engaged in that unsuccessful expedition was now on board: he had been wounded on that occasion in the arm by a ball from Mr. Mariner's musket. About a 525 526 727 twelvemonth before, he laid a wager with Mr. Mariner that he could not hit a mark which he put on a cocoa-nut tree at a certain distance with his musket: the bet was a pig. Mr. Mariner accepted the wager, and the king promised to pay the pig if he lost: it happened, however, that he missed, and the king lost his pig. The 727 669 warrior, as soon as he saw Mr. Mariner on board, came up to him, and said, smiling, "I find you "can shoot better than you did at the cocoa-nut "tree." Mr. Mariner inquired after his wound, and was happy to find that it had got nearly well. The ball had passed through the fleshy [752] part of the arm; his Hapai *surgeon*, however, had laid the wound considerably open, and managed it very well.

727 It was very ludicrous to hear the different strange excuses and apologies made by the natives, in regard to the affair of the Port au Prince, with a view to persuade the captain that *they* had nothing to do with it. Many said that they

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little finger, as a sacrifice to the gods, for the recovery of a superior sick relation. This is very commonly done; so that there is scarcely a person living at the Tonga islands but who has lost one or both, or a considerable portion of both little fingers. Those who can have but few superior relations, such as those near akin to Tooitonga, or the king, or Veachi, have some chance of escaping, if their relations are tolerably healthy. It does not appear that the operation is painful. Mr. Mariner has witnessed more than once little children quarrelling for the honour (or rather out of bravado) of having it done. The finger is laid flat upon a block of wood: a knife, axe, or sharp stone is placed with the edge upon the line of proposed separation; and a powerful blow being given with a mallet or large stone, the operation is finished. From the nature and violence of the action, the wound seldom bleeds much: the stump is then held in the smoke and steam arising from the combustion of fresh plucked grass: this stops any flow of blood. The wound is not washed for two days; afterwards it is kept clean, and heals in about two or three weeks, without any application whatever. One joint is generally taken off, but some will have a smaller portion, to admit of the operation be-

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the general history of human science, but because, in all early stages of society, it appears to have a particular connexion with, and often to depend entirely upon, certain religious ceremonies; nor is this to be wondered at, for, seeing that the operations of the animal œconomy are so far involved in mystery, as frequently to escape the scrutinizing search of the most cultivated mind, how can it be otherwise but that a people, among whom the sources of knowledge are scanty, and the opportunities of experiment on the animal œconomy both rare and hazardous, should look to the gods for relief from those miseries which evidently proceed from an unseen hand: a considerable portion of the curative means of these people are, therefore, very naturally, *invocation* and *sacrifice*. Nevertheless, as the animal œconomy is subject to a variety of accidents, the causes and operations of which take place, and pursue their progress, more or less, under the evidence of the external senses, appropriate means of cure are frequently had recourse to, and operative surgery is therefore not in a contemptible state of cultivation.

All the remedies practised among them may very safely be ranked under these three heads, viz. invocation, sacrifice, and external operations: as to internal remedies, they sometimes,

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but very seldom, use infusions of a few plants, which produce, however, no sensible effect, either upon the system or upon the disease, and we may readily conceive in how little esteem such remedies are held when the king's daughter, whose life so great pains were taken to preserve, took none of them, nor did any one think of proposing them. The idea of giving these infusions was first taken from the natives of the Fiji islands, who have the repute of being skilful in the management of internal remedies: and though almost all the surgical operations known and practised at the Tonga islands have avowedly been borrowed from the same source, and followed up with a considerable degree of skill and success, yet the Tonga people have generally failed in the former, and for the cure of constitutional ailments depend upon the mercy of the gods, without any interference on their own parts, except in the way of invocation and sacrifice. In such a state of things, it would be natural to suppose that they frequently make use of charms, amulets, &c. to assist in the cure; but this, however, is never done, for they have not the most distant idea of this sort of superstition, which prevails so much over almost all the world, even in the most civilized countries. The natives of the Sandwich islands, however, appear to have a

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remedies twice with very good effect, which encouraged some others to try; but as these circumstances took place only a short time before Mr. Mariner left, and consequently only a few trials had been made, we ought not to speak of them as constituting the medical knowledge of the Tonga people; but as this Sandwich island chief was a man of considerable judgment, and, as Mr. Mariner has every reason to think, a good observer, we indulge the hope that no ill success, at an early period, has destroyed confidence in the adoption of two such useful remedies.

The ceremonies of invocation in behalf of sick people have already been described in the account of the sickness of the late king's daughter: the sacrifices adopted on similar occasions are *tootooni'ma* and *nawgia;* cutting off fingers and strangling children: these also have both been described; the latter is only done for very great chiefs. We shall now proceed to speak of their operative surgery, and constitutional diseases, as far as Mr. Mariner's observation can lead him to speak with accuracy.

No native of Tonga undertakes to practise surgery unless he has been at the Fiji islands, where constant wars afford great opportunities of becoming skilful; and no native of Tonga would employ a surgeon who had not been

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thus schooled: nor would any one, as Mr. Mariner believes, undertake an important surgical operation, unless he feels himself confident in what he is about to perform; and it must be said of them, that they are not rash in their opinions. When a surgeon performs an operation, he never fails to obtain a present from the patient or his friends.

The three most important operations are *cawso*, or paracentesis thoracis; *tocolosi*, or an operation for the cure of tetanus, which consists in making a seton of the urethra; and *boca*, or castration.

Cawso is an operation which is performed to allow of the escape of extravasated blood, which may have lodged in the cavity of the thorax, in consequence of wounds, or for the extraction of a broken arrow. There are no other instances where they think of performing it. The instruments they use are a piece of bamboo and a splinter of shell; sometimes a probe made of the mid-rib of the cocoa-nut leaf. Mr. Mariner has seen a number of persons on whom the operation had been performed, and who were in perfect health; and two instances of the fact itself he was an eye-witness to. The one we are about to describe was performed upon a Fiji islander, who had received a barbed arrow in the right side, be-

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752 tween the fifth and sixth ribs; not in a line directly below the nipple, but about an inch backwards. The arrow had broken off about three inches from the point *, under the third row of barbs, and from the rise and fall of the thorax in the act of respiration the whole piece was perfectly concealed from any external view: the barbs and the point were of the same piece with the rest of the head of the arrow.

A countryman of the wounded man wished to perform the operation, but the patient desired that a friend of his, a native of Vavaoo, should manage it: this proved that he placed at least equal confidence in his skill as in that of his countryman; indeed he had seen him perform the operation several times before, at the Fiji islands.

The patient was now lying on his back, but a little inclined to his left side; and this was considered a favourable posture for the operation. It was a fine clear day, and the weather warm: had it been rainy or cloudy, or had the patient felt himself cold, fires would have been lighted in the house, and a burning torch held to his side, to relax the integuments, and to

[411] * They are made thin under each barb, on purpose that they may break. The barbs of this arrow were about a quarter of an inch transverse diameter, and the stem of the arrow under each row of barbs about the eighth of an inch.

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render by such means the wound more favourable. The wound had been received the day before; and on pressing the finger upon its orifice the broken end of the arrow could not now be felt, except by the pain which such pressure gave the patient. In the first place, the operator marked with a piece of charcoal the situation and length of the intended incision, which was about two inches; the small wound made by the arrow being in the centre of it. The integuments were now drawn upwards, so that the black line lay upon and parallel with the superior rib; an assistant pressing his hand above, and another below the situation of the intended incision, with a view to keep the integuments firm and steady. The operator having now chosen a fit piece of bamboo, began his incision, and carried it down to the bone, the whole length of the mark, which was done with five or six motions of the hand, aided by considerable pressure: in this part of the operation a shell could not be used, on account of its liability to break. The integuments being now allowed to return to their natural situation, the incision was cautiously continued with a splinter of shell, midway between the two ribs, dividing the intercostal muscles to nearly the same extent as the external wound, to allow of the introduction

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752 of a finger and thumb to lay hold of the arrow: during this part of the operation, however, the end of the arrow became perceptible, protruding between the costæ at every expiration: the operator, as soon as possible, secured it with the finger and thumb of his left hand; whilst with his right he proceeded to widen the incision on either side, that he might take a deeper and firmer hold, and secure, if possible, the second row of barbs: to facilitate the operation, he now slipt the noose of a string over the barbs he held between his finger and thumb, and having secured which, his left hand was no longer in the way of his right; for by drawing the string as far as prudence would allow, he kept it prest upon the superior rib, and thereby preserved the arrow from receding at every inspiration. The incision was now carried through the intercostal muscles and the pleura, sufficiently to allow of the introduction of the finger and thumb of the right hand, with which he endeavoured to disengage as much as possible what might obstruct the barbs; whilst with his left finger and thumb he laid hold of the end of the arrow, and kept gently twisting it, always one way, so as to break down those obstructions which could not be removed with the other hand, taking care, however, not to use so much force as might be

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supposed liable to break the barbs; and in this way, in the course of two or three minutes, he withdrew the arrow, bringing with it a small portion of the substance of the lungs, which could not be disengaged. During this part of the operation the patient was almost insensible he was held by those about him, to prevent any mischief arising from his struggles, which at times were violent. The operator now carefully examined the arrow, and being satisfied that every barb (of which there were three rows) was entire, he ordered him to be gently turned on the right side, so that the wound was depending, and to make it more completely so, a quantity of *gnatoo* was placed under him in two situations, viz. under the shoulder, and under the *pelvis*, in such a way that the orifice of the wound was evidently the most depending portion of the thorax. The patient being now perfectly sensible, the operator desired him to make a full inspiration, enquiring whether it gave him much pain; and being answered that he could bear it tolerably well, he desired him to make several full inspirations from time to time, but not so as to fatigue himself, and occasionally to move his body gently: by these means a considerable quantity of blood was discharged. A few hours afterwards the operator introduced between the ribs a portion of banana leaf,

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752 smoothly folded several times, and anointed with cocoa-nut oil, as a pledget to keep open the [757] wound. He ordered his patient to be kept perfectly quiet, not to be spoken to, no noise to be made, nor his attention to be attracted in any way: to live chiefly upon vegetable diet, or if he had any kind of meat, fowl in preference to pork, or if pork, it was to be very small in quantity, and without the least fat, with cocoa-nut milk for drink, in any quantity that he felt disposed to take. The first night he had a great deal of pain, much thirst, and little sleep; the following day he was much easier, a great deal of blood was found to have been discharged, and a fresh pledget was introduced, which was renewed every morning as long as any discharge was apparent. When the discharge of sanguineous fluid ceased, which was in about nine or ten days, the operator introduced his probe, to be sure that the cessation of the discharge was not occasioned by any obstruction: he then contented himself with a more superficial pledget, that the external orifice might not heal too soon; and the patient was allowed to change his posture occasionally, 752 but not for a long time together. As he grew 757 better a little more meat was allowed him: but the use of cava was interdicted until he got tolerably well. The wound healed in about six

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weeks, without any sort of dressing or washing; the patient was confined to his house about two months, and was not perfectly recovered till near a twelvemonth, when he seemed as healthy and as strong as ever, with scarcely any cough having supervened in the meanwhile. This was considered a very dangerous wound, and a very well conducted cure. Mr. Mariner does not know that they are acquainted either with the exact situation or existence of the intercostal arteries.

It often happens that the arrow, not being a barbed one, is withdrawn without any difficulty; but still the surgeon thinks proper to perform the operation of *cawso*, not by enlarging the wound made by the arrow, but by making another at some little distance from it, in a part which, either from judgment or education, he deems more safe and proper. In all those persons whom Mr. Mariner knew to have undergone the *cawso* it had been performed in nearly the same situation as the one above stated.

We have observed in the before-mentioned case that the wound was not washed, and it may here be noticed, that in all cases of considerable wounds produced by pointed instruments the patient is not allowed to wash himself till he is tolerably well recovered, nor to shave, cut his hair, nor his nails: for all these things

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752 757 515 753 [302] [164] they say are liable to produce *gita* (tetanus), unless the wound be of such a nature, and in such a situation, that it may with safety be first laid completely open, then there is no danger. Mr. Mariner never witnessed a case of tetanus produced by these means; but he met with many who said they had seen it in persons who had got nearly well of their wounds, but happening to wash themselves too soon, spasm supervened, and death was the consequence. They 752 753 notice that wounds in the extremities, particularly in the feet and hands, are liable to produce tetanus: also, in persons already wounded, sudden alarms, or even any sudden noise that calls the attention abruptly, is liable to produce this complaint. They never allow females to be near men thus wounded, lest the mere stimulus of venereal desire should induce this 752 757 302 753 [515] dangerous complaint. As to cutting the hair and nails, they positively assert that the mere sensation of these simple and common operations has not unfrequently been productive of these dreadful consequences. The man whose case we have just mentioned was eight months without being washed, shaved, or having his hair or nails cut.

752 177 164 *Gita* is a disease very common among the Tonga people; but still more common among the natives of the Fiji islands, who, from their

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warlike habits, are more frequently in the way of it: they adopt, however, a remedy which the Tonga people have borrowed of them, and consists in the operation of *tocolósi*, or passing a reed first wetted with saliva into the urethra, so as to occasion a considerable irritation, and discharge of blood; and if the general spasm is very violent, they make a seton of this passage, by passing down a double thread, looped over the end of the reed, and when it is felt in the perinæum they cut down upon it, seize hold of the thread, and withdraw the reed, so that the two ends of the thread hang from the orifice of the urethra, and the doubled part from the artificial opening in the perinæum; the thread is occasionally drawn backwards and forwards, which excites very great pain, and abundant discharge of blood. The latter operation Mr. Mariner has seen performed several times; but only twice for tetanus, arising in both instances from wounds in the foot: in these cases the spasms, but particularly the convulsive paroxysms, were exceedingly violent, extending to the whole body, neck, face, trunk, and extremities: but in neither case was the jaw permanently locked, though on every accession it was violently closed for a few seconds. A native of the Fiji islands performed one operation, and Hala A'pi A'pi the other: they both hap-

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pened at Vavaoo, at different times. In either case the disease came on suddenly, three or four days after the wound was received, which was from an arrow not barbed. The moment the symptoms became evident *tocolósi* was performed. In the short space of two hours one of them was greatly relieved, and the other in about six or eight hours. The following day the one on whom Hala A'pi A'pi operated was quite well, and afterwards had no other attack; consequently the thread was withdrawn: but the other on the second day was not quite free from spasmodic symptoms, and a paroxysm coming on, the seton was moved frequently, which in two or three hours gave him great relief, and he afterwards had no other attack: it was thought prudent, however, to keep in the seton till the fourth or fifth day, when it was withdrawn. The effect of this operation was a considerable pain and tumefaction of the penis, but which gradually subsided (in about five or six days): the artificial openings in both cases healed spontaneously, without any difficulty.

These are the only two cases of tetanus in which this operation was performed that Mr. Mariner can speak of with certainty, having been an eye-witness of them. He heard of several others at the Hapai islands, at the island of Tonga, &c. some of which were equally for-

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tunate. From what he has heard and seen of the success of this operation at the Tonga islands, he is disposed to believe that about three or four in ten recover by the aid of it. The Fiji islanders, however, speak of the happy effects of this singular mode of cure with much more confidence than the natives of Tonga; but as they claim the merit of the discovery, they are probably rather too profuse in praise of it.

Tetanus is not the only disease for the cure of which the operation of *tocolósi* is performed: it is adopted also in cases of wounds in the abdomen, upon the mistaken notion that any extravasated blood in the cavity of the abdomen is capable of passing off by the discharge from the urethra. Mr. Mariner saw the operation performed once in this case, and, as the man was considered in a very bad state, and notwithstanding got well, the cure was attributed to this remedy. It is also performed for relief in cases of general languor and inactivity of the system; but, in such instances, they only endeavour to produce irritation by passing the reed without any thread or artificial opening: the present king had it thus performed on him for this purpose; and two days afterwards he said he felt himself quite light, and full of spirits.

The natives of these islands are very subject

3: Mariner F-5 (1806-1810) 1818
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752 to enlarged testicles, and for this they some-
[164] times perform the operation of *boca* (castration).
[123] Mr. Mariner's limited observation on this subject does not authorize him to speak with any degree of certainty in regard to the precise nature of these tumefactions. Their mode of performing this operation is summary enough: a bandage being tied with some degree of firmness round the upper part of the scrotum, so as to steady the diseased mass, at the same time that the scrotum is closely expanded over it, an incision is made with bamboo, just large enough to allow the testicle to pass, which being separated from its cellular connexions, the cord is divided, and thus ends the operation: they neither tie the cord, nor take any pains to stop the bleeding; but, if the testicle be not very large, and the epidydimis not apparently diseased, they perform the operation by dissecting it from that body with the same instrument. The external wound is kept from closing by a pledget of the banána leaf, which is renewed every day till the discharge has ceased; the scrotum, in the mean time, is sup-
[123] ported by a bandage. A profuse hæmorrhage is mostly the consequence of this operation: it was performed seven times within the sphere of Mr. Mariner's knowledge, during his stay; to three of which he was a witness: not one

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of the seven died. One of these cases was that of a man who performed the operation on himself: his left testicle was greatly enlarged, being about five or six inches in diameter, and gave him, at times, severe lancinating pains: two or three times he was about to have the operation performed by a native of Fiji, but his courage failed him when he came to the trial. One day when Mr. Mariner was with him, he suddenly determined to perform the operation on himself; and it was not much sooner said than done: he tied on the bandage, opened the scrotum with a very steady hand, in a fit of desperation divided the cord and cellular substance together, and fell senseless on the ground: the hæmorrhage was very profuse. Mr. Mariner called in some persons to his assistance, and he was carried into a house, but did not become sensible for nearly an hour, and was in a very weak state from loss of blood: this affair confined him to the house for two or three months. There was one rare instance of a man, both of whose testes were affected with some species of sarcoma, to a degree almost beyond credit: when he stood up, his feet were necessarily separated to the distance of three quarters of a yard, and the loaded scrotum, or rather the morbid mass, reached to within six inches of the ground:

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there was no appearance of a penis, the urine being discharged from a small orifice about the middle of the tumor, that is to say, about a foot and a half below the os pubis. The man's general health was not bad; and he could even walk by the help of a stick, without having any sling or support for his burthen: it was specifically lighter than fresh water, and considerably lighter than salt water, so as to produce much inconvenience to him when he bathed. He died at the island of Foa, about two or three months before Mr. Mariner left Vavaoo.

As to fractures, and dislocations of the extremities, it may be said that there is scarcely any native but what understands how to manage at least those that are most likely to happen; for they are very well acquainted with the general forms of the bones, and articulations of the extremities. They use splints made of a certain part of the cocoa-nut tree: for broken arms they use slings of gnatoo. In fractures of the cranium they allow nature to take her course without interfering, and it is truly astonishing what injuries of this kind they will bear without fatal consequences: there was one man whose skull had been so beaten in, in two or three places, by the blows of a club, that his head had an odd mis-shapen appearance, and yet this man had very good health, except

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when he happened to take cava, which produced a temporary insanity. Fractures of the clavicle and ribs Mr. Mariner never saw there.

The most common surgical operation among them is what they call *tafa*, which is topical blood-letting, and is performed by making, with a shell, incisions in the skin to the extent of about half an inch in various parts of the body, particularly in the lumbar region and extremities, for the relief of pains, lassitude, &c.; also for inflamed tumours they never fail to promote a flow of blood from the part; by the same means they open abscesses, and press out the purulent matter: in cases of hard indolent tumours, they either apply ignited *tapa*, or hot bread-fruit repeatedly, so as to blister the part; and ultimately to produce a purulent surface. Ill-conditioned ulcers, particularly in those persons whose constitutions incline to such things, are scarified by shells; those that seem disposed to heal are allowed to take their course without any application.

In cases of sprains, the affected part is rubbed with a mixture of oil and water, the friction being always continued in one direction, that is to say, from the smaller towards the larger branches of the vessels. Friction, with the dry hand, is also often used in similar and other cases, for the purpose of relieving pain.

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751 In respect to inflammations of the eyes, which sometimes rise to a very great height, attended frequently with a considerable purulent discharge; they frequently have recourse to scarification by the application of a particular kind of grass, the minute spicula with which it is replete dividing the inflamed vessels as it is moved upon the tunica adnata. To assist in reducing ophthalmic inflammations, they also drop into the eye an acid vegetable juice, and sometimes another of a bitter quality; the first is called *vi*, the latter *bawlo*. 164 The species of ophthalmia to which they are subject, though sometimes lingering, is stated scarcely ever to have produced serious consequences, and is not considered contagious. Mr. Mariner neither saw nor heard of but one man who had lost his sight by disease.

752 In cases of gunshot wounds, their main object is to lay the wound open, if it can be done with safety in respect of the larger blood-vessels and tendons, not only for the extraction of the ball, if it should still remain, but for the purpose of converting a fistulous into an open wound, that it may thereby heal sooner and better: if they have to cut down near larger vessels, they use bamboo in preference to the shell; the same near tendons, that there may be less chance of injuring them. They always

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make incisions nearly in the course of the muscles, or, at least, parallel with the limb.

The amputation of a limb is an operation very seldom performed; nevertheless it has been done in at least twelve individuals. Mr. Mariner seeing one day a man without an arm, curiosity led him to enquire how it happened, and found that he had been one of the twelve principal cooks of Toogoo Ahoo, the tyrant of Tonga, and had submitted to the amputation of his left arm, under the circumstances related Vol. I. p. 70. The mode in which this operation was performed was similar to that of *tootoonima*, described Vol. II. p. 210, only that a large heavy axe was used for the purpose. The bleeding was not so profuse as might be imagined, owing, no doubt, to the bluntness of the instrument and violence of the blow. This stump appeared to Mr. Mariner to be a very good one; the arm was taken off about two inches above the elbow. Ten were stated to have done very well; of the remaining two, one died of excessive hæmorrhage, and the other of mortification. There was also a man living at the island of Vavaoo who had lost a leg in consequence of the bite of a shark, which is not a very uncommon accident; but there was something unusual in this man's particular case: his leg was not bitten off, but the flesh was almost

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752 completely torn away from about five inches
[164] below the knee down to the foot, leaving the tibia and fibula greatly exposed, and the foot much mangled: he was one of those who chose to perform his own operations; with persevering industry, therefore, he sawed nearly through the two bones with a shell, renewing his tedious and painful task every day till he had nearly accomplished it, and then completed the separation by a sudden blow with a stone! The stump never healed. Mr. Mariner had this account from the man himself and many others.

304 *Tĕfe*, or the operation of circumcision, is
752 thus performed: a narrow slip of wood, of a convenient size, being wrapped round with *gnatoo*, is introduced under the præputium, along the back of which a longitudinal incision is then made to the extent of about half an inch, either with bamboo or shell (the latter is preferred); this incision is carried through the outer fold, and the beginning of the inner fold, the remainder of the latter being afterwards torn open with the fingers: the end of the penis is then wrapped up in the leaf of a tree called *gnatái*, and is secured with a bandage: the boy is not allowed to bathe for three days:
[171] the leaf is renewed once or twice a day. At the Fiji islands this operation is performed by

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amputating a portion of the præputium, according to the Jewish rite.

The operation of the *ta tattow*, or puncturing the skin, and marking it with certain configurations, though it is not properly surgical, yet we mention it here, as it is very apt to produce enlargements of the inguinal and axillary glands. The instrument used for the purpose of this operation somewhat resembles a small tooth comb: they have several kinds, of different degrees of breadth, from six up to fifty or sixty teeth: they are made of the bone of the wing of the wild duck. Being dipped in a mixture of soot and water, the outline of the *tattow* is first marked off before the operator begins to puncture, which he afterwards does by striking in the points of the instrument with a small stick cut out of a green branch of the cocoa-nut tree: when the skin begins to bleed, which it quickly does, the operator occasionally washes off the blood with cold water, and repeatedly goes over the same places: as this is a very painful process, but a small portion of it is done at once, giving the patient (who may justly be so called) intervals of three or four days rest, so that it is frequently two months before it is completely finished. The parts tattowed are from within two inches of the knees up to about three inches above the umbilicus: there are certain patterns or forms of

8: Collocott & Havea M, I-5 (no date) 1922
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539 278 272 273 **487. Hange ha inu vai tulotula:** Like drinking *tulotula* medicine.

This particular member of the Tongan pharmacopoeia has no pronounced or unpleasant taste and one may drink it like water. Probably the drugs that enter into its composition are not very strong and they do not produce very marked effects. Used of one who drinks large quantities of liquids like kava or spirits without showing any effects.

539 164 577 **488. Hange ha kainiloto:** Like a *kainiloto.*

Kainiloto is an ulcerous or cancerous affection of the throat and nose whose nature is indicated by its name, which means eating inside. The disease has already committed serious ravages in the interior of the body before it becomes apparent on the surface. The phrase is applied to an evil which is hidden at first and only shows up when it has reached a very serious stage and is extremely difficult to cope with.

539 826 752 **489. He oku ai ha hui kape loto:** For is there a bone (needle) to pick out (what is in the) heart?

If one gets a splinter, for instance, in any external part of the body he can easily pick it out with a needle; but there is no needle that can pick out the secrets in the heart.

539 514 758 **490. Kovi jiko ngaoi:** To evacuate the bowels moving about is bad.

This is applied to a sick man, who, instead of lying down patiently and taking the care that his ill health demands, wants to be up and at work. His unwisdom is parallel to that of the man who should try to walk about while performing a function that is obviously inconsistent with walking exercise.

539 758 **491. Mahaki fakapopo fala:** Sickness rotting mat.

Refers to very protracted illness in which the patient is lying down so long that it might be said that his bed mats are rotting under him.

539 757 484 368 **492. Malumalu talavai:** Shady (for) getting medicine.

Probably a late phrase, dating from the establishment of the mission stations and of Government hospitals with their dispensaries. Such dispensaries are naturally in the larger villages and people often travel a considerable distance to reach them. The phrase indicates the cool of the late afternoon suitable for the journey to a village where a dispensary stands.

539 758 183 **493. Mangu bea lau:** Scab and touching with the fingers, that is, picking the scab from a sore.

Making a bad thing worse by meddling.

539 164 554 565 **494. Papanga eiki:** Level chiefs.

Papanga means to be disfigured by having the nose eaten away by a kind of ulceration not very uncommon in these islands. If the nose is gone the face is level, there is no boldly jutting out feature left. So of a gathe-

13: Beaglehole & Beaglehole E-5 (1938-1939) 1941
OU9 Tonga OU9
Vavau
Pangai

757 824 *Stomach-ache:* (a) To the liquid from twelve pounded *nonu* leaves add three drops of coconut-oil, strain through coconut-stipule and drink with water; (b) Mix scrapings from the bark of the *mohokia* tree and of the *kea* breadfruit tree with water, and drink; (c) For a laxative, add water to the scraped bark of the *fa'efa'elunga* tree and drink; (d) Massage the abdomen with four leaves from the fig-tree.

Boils: (a) Crush bark scrapings from the *nonu* tree and smear on the inflamed area after mixing with crushed *koka* leaves; (b) For spots on a baby's skin, pound or chew the leaves of the *fekika* tree, mix with water. Dip coconut-stipule in this liquid and squeeze the liquid into the baby's mouth.

Coughs: Scrape the bark of the *toa* tree or the *tava* tree, add water to the scrapings and drink the liquid.

Cuts: (a) Take the husk of the immature green coco-[752] nut, heat it until it is warm, then squeeze out drops of liquid from the husk over the cut; (b) Crush the bark of the *fale* tree or the leaves of the *tamatama* tree, dip a piece of bark cloth in this juice and squeeze over the cut.

752 *Broken bones:* Apply a splint made from a section of the sheath of the coconut-tree to the broken limb and bathe the fracture night and morning with hot water.

757 *"Body-breaks":* Whenever there is pain in the upper part of the body, in the chest, lungs or back for instance, this pain is attributed to an obscure internal "breakage" in the body. Treatment: Add two drops of coconut-oil to some hot water and massage the seat of the pain with this liquid. In addition, mix the scraped bark of the *lekileki* tree with water and drink night and morning immediately after the massage [755] is finished. For a backache, standing on one foot several times each day is also recommended.

757 759 The remedies just given are the secret recipes of one medicine-man only. Other experts have their own variations on these fundamental techniques of herbal and massage-treatment. The sick person will consult the experts in succession until one or other provides the treatment that effects the cure. It is of considerable advantage to the expert to know the acts likely to have caused the sickness,

15: Thomson G-3 (1886-1900) 1902
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644 757 759 trums of their own on the principle of "more medicine, quicker cure." It is only by simulated outbursts of indignation that Dr. Maclennan can get his orders obeyed.

752 In surgery alone do the Tongans frankly admit their helplessness. An old shed in our host's compound had been hastily converted into an operating-room, in order that the presence of a naval surgeon to assist in operations might be [164] turned to account. For several days in succession the two doctors were operating on bad cases of elephantiasis, the relations of the patients camping outside to act as hospital nurses. Even under these unfavourable conditions the patients all made rapid recovery, but there was one painful case in which the patient deliberately preferred death. A young man, while pig-shooting in the bush, had put a charge of shot into his own leg, shattering the ankle. There was nothing for him but amputation, but when his relations heard that he must lose his foot, they refused to allow the operation. They would try herbs, they said, and for a day or two they brought reports that he was better. Gangrene at last set in, and while there was yet time I went to reason with the lad's mother. Secretly, I fear, the reflection that if he lived the lad would

15: Thomson G-3 (1886-1900) 1902
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be a helpless cripple on their hands had some weight with them. At last they were brought so far as to put him on a litter to carry him to the operating-room, but their hearts failed them in the end and he never came. The lad himself seemed to prefer death, so great is the Polynesian's horror of mutilation.

It is not always for human beings that Dr. Maclennan is asked to prescribe. Having been much troubled by his neighbours' pigs, he gave public warning of his intention of shooting intruders at sight. The very next night he executed his threat by moonlight, and heard the trespasser make off with an agonised squeal. Next morning he received an urgent summons from the inspector of police, a particular friend of his, to see his favourite pig which had been taken violently ill. One glance was enough to show him what ailed it, and he said, "The pig is very ill; it cannot live many hours, but if you kill and eat it at once, the meat will be perfectly wholesome." The owner took his advice, but unhappily, in carving the meat, he came across a bullet. It cost the doctor more than the value of the pig to patch the friendship up. By dint of a happy mingling of kindliness and mock ferocity he contrives to get his orders

17: Collocott M-5 (no date) 1923
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SICKNESS, GHOSTS AND MEDICINE IN TONGA.

By E. E. V. Collocott, M.A.
Nukualofa, Tonga.

752 PHYSICAL disabilities have not all equally obvious explanations. If a man is struck on the head with a club, the broken skull and knobby piece of hardwood are material evidences easily
753 associated with his lifeless body. Far otherwise are the mysterious internal pains and weaknesses that attack, now the limbs, then the trunk or the head. How explain the vertigo that may overcome a man on whom is no external mark of violence, that causes his spirit
[152] to flee and leave his body senseless on the ground? The Tongan succumbs to nervous pains in a way that, at first sight, seems inconsistent with the stoical fortitude with which he bears muscular injuries; but the explanation probably is that in the one case there is obvious and satisfactory cause for the discomfort, whilst the other is uncanny and dread inspiring. A young fellow, a fine strapping man, who, as a schoolboy in Sydney, had given promise of reaching the highest rung in the cricket ladder, was suffering from a swelling in the side, which the white doctor, a capable surgeon, pronounced incurable without an operation which he, with the facilities at hand,
752 did not deem himself justified in undertaking. The doomed man returned to his own village, and without anæsthetic or antiseptic, was operated on with a penknife, and is now verging into hale and portly, but active, middle age. A woman, very stout, who had lived long enough to become a grandmother, had to have a rib removed. The operation was performed by a skilful European surgeon, but the patient's health would not stand chloroform, and a local anæsthetic proved
[152] ineffective. She bore the operation without flinching. Whilst the cutting and scraping of bone was going on the hospital attendants kept asking her how she was. "I'm all right," she would reply, and at last, exasperated by the repeated query, she exclaimed
[152] impatiently, "Go ahead, and if I cannot stand it I'll tell you." And yet these people, who endure wounds and fractures with such courage, are unnerved by wind in the stomach, and go to bed to
752 nurse a headache. The native massaging is excellent. I have
759 experienced its benefits. One afternoon I ricked my ankle rather badly. Twice that evening a girl massaged it with warm water and oil (the almost invariable accompaniments of the treatment): it was

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painful, but the next day I walked about without the least twinge. I asked her how she knew where to rub. She replied that she just rubbed. "Well," I said, "How did you learn to do it?" "By doing it," she answered, "my father used to make me go and do it for people." And that was all the explanation she was able to give. At another time I was cured of a strain in the groin by a man who just pressed the top of his thumb gently on the strain, so gently that I thought he was afraid of hurting me: but I was quite well in a few hours.

The trouble with the Tongan practitioners is that they have little or no idea of diagnosing a complaint. They just try one thing after another, and the massaging, excellent as it is, is frequently employed where it is not only useless, but even dangerous. Diagnosis is replaced by a series of trials and failures; as the Tongans say, "We'll have a try." If one thing does not show quick results, try another. A man went to a missionary and asked for medicine for a little girl. "She is very ill indeed," he said, "yesterday we gave her seventeen sorts of medicine and she is not better yet." Different practitioners have their own special remedies. One medicine man, or woman, after another, tries his cure, till one is found which gives promise of success, which shows a "sign," or until death cuts short the experiment, and gives a verdict which is accepted with pious resignation as the will of the Lord.

Nor are efforts at cure confined to the person of the patient. Neglect of the dead is a fruitful source of discomfort and sickness to the living. Many ghosts, however, do not seem to merit so much fear as pity. Certainly there are bad-tempered ghosts, who are the ghosts of bad-tempered people pretty often, but frequently the dead cause annoyance to the living to draw attention to their own miseries. The root of a tree has grown through the head of a buried corpse, and a living relative suffers from headache. Of course the cause of the trouble may not be located at once. The living sufferer has recourse to one treatment after another. All is unavailing. At length the cemetery may be tried. The grave is opened, the root cut out, and the headache disappears. It happens, in the cases of this sort of which I have heard, the patient has generally, if not always been a woman, and the suffering corpse, or ghost, that of an elderly female relative. Sometimes a rearrangement of the buried bones sets everything right, and effects a cure. This ghostly physic is not effective only in cases of headache. The woman who so courageously bore the loss of a rib made good recovery, except for a small hole which refused to close up. It did not occasion any real discomfort, but naturally she preferred to be without it. An investigation of her mother's bones was at length decided upon; but I have not heard whether it has been carried out. The inconsiderate affection of the

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plunge into the other place. Tongans are of course unaware of the amiable company that Mr. Bernard Shaw assures us is there. 775

The solicitations of dead friends does not at all exhaust the possibilities of ghostly interference with the health of the living. Almost any sickness may as well be due to ghosts as to anything else. A girl who lives with a European family in a place where there is a good deal of bush about, happened to cough in the presence of a wise old lady, and was submitted to the following diagnostic examination. "Do you cough much?" "Yes, I cough a good deal." "Do you sleep by yourself?" "Yes, I have a room to myself." "In the dark?" "Yes." "Ah, that is it. In the bush, by yourself, in the dark. Ghosts. Now what you must do is to put a tent of native-cloth round your bed, and sleep inside that with a lighted lamp." 775 753

Writers have commented on the simplicity of ghosts, and indeed they seem pretty easy to deceive. A precaution that is not without tender pathos is sometimes taken with women who die in childbirth, or whilst they have a child at the breast. A *tappa* mallet is laid on the dead woman's arm, so that she may suppose that her babe is with her, and so rest peacefully and not go and take her child away. But in spite of all precautions a ghost sometimes breaks through our guards. A man goes to sleep in apparently robust health, and in the morning is found dead. A ghost has come in the night and throttled him, and witnesses are not wanting to testify to marks on his throat. Such a death would perhaps be attributed to conduct which had offended the ghosts. 775 [764] 775 761

In earlier days it was extremely common to sacrifice a joint of the little finger on behalf of a sick friend, and in the case of a high chief who was seriously ill a human victim might be offered. Mariner describes the sacrifice of a little girl on behalf of the chief Finau, and I have myself spoken to a man whose mother was an eye-witness of the sacrifice of a man to secure the recovery of a sick chief. In both cases the victim was strangled, and in both cases, too, the patient dishonoured the remedy by dying. 782 165 755

Besides the wide and indefinite number of sicknesses attributable to the misguided affection or malevolence of spirits, a very large range of disorders is classified as *fasi*, a breaking. There seems to be an analogy with the known phenomena of broken bones and strained muscles. The sprains which are amenable to the excellent massage are called twisted sinew, but these supposed breakings are most varied in character, and as indefinite as the illnesses resulting from the pranks of ghosts. The aches caused by lung troubles are supposed to be caused by some sort of internal rupture, and treated accordingly; both internal and externally. As as cure for an aching back massaging is likely to prove effective, even if the decoctions of 752 753

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752 753 leaves that are drunk tend rather to poison the patient than to assist his cure; but applied to pneumonia, pleurisy, or consumption, the method is disastrous. The ideas which direct the healer are of the haziest. I once questioned a man, an intelligent man to boot, who was a noted healer in this genre, as to the type of disorder which he treated. I said that I could understand that a broken bone, or even a strained muscle might be spoken of as a rupture, but what sort of a break was that which made a man have a pain in his chest. What was broken or strained? "It's just a break," he said, and that was all about it. I don't think he was guarding professional secrets through fear of a possible rival.

The rupture that causes the trouble may not be recent, but a little judicious questioning does not fail to identify at last the incident to which the blame attaches. A forgotten fall, or the lifting of a heavy weight, is recalled; "Ah, that is it."

753 827 A third great class of sicknesses embraces boils and ulcers and rashes and skin diseases generally, as well as swellings and tumours. These external complaints have individual names, but the class name, *hangatamaki*, is applied with the usual vagueness to diseases external and internal. A specially severe sickness of this sort is "various thing," an internal complaint, in which a mixture of troubles are present, together with a roving commission which enables them to attack different parts of the body simultaneously or successively. 755 757 The medicines for this type of disease seems to have a special virulency, or to be specially suitable for witchcraft. Medicines in general have the power of causing the sickness which they cure. A girl had a swelling on her abdomen which was cured by a woman, but the girl's brother afterwards had a swelling on the neck. This was caused by the medicine which had cured the girl. A woman was once sitting quietly in church, when all at once she commenced to cough. She coughed, and coughed, and presently felt something in her mouth. She put up her hand and grasped it. It was smooth and round. She thought it was the end of her bowels! She pulled, and the thing came away in her hand, and she cast it from her on the floor—a big, strange, hairy worm. Then she gathered it up in her handkerchief. In spite of her fright, she evidently felt strong proprietary rights in the creature, and would have resented anyone else picking it up; "If I can't pick it up, who can?" The sagacious suggestion was made to drown the animal in medicine, and so make a potion able to cure a similar disorder should it ever reappear. But the worm would not drown. It was thrown into various medicines, but throve in them all, and at last was cast into the fire and burnt. Thus science, on the verge of discovery, was again baffled.

Since medicines have the power of causing the ills they cure they must be treated properly. Unauthorised meddling with medicine

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is dangerous. The practitioner, when he has finished his treatment, carefully puts his basket or little bundle of medicine away in the shade, perhaps in the fork of a tree in the bush—it should not be left in the sun; and then he washes his hands. The owners of healing secrets generally guard their knowledge pretty jealously, and some virtue resides in themselves. It would be useless, if not dangerous, to steal anyone's medicine, but the prescription will be effective if properly bestowed by one person on another. There do not seem to be, however, any special ways of gathering the barks and leaves used, though I have been told of a medicine whose base is a bark which must be scraped from the tree when the rising sun shines upon it, and there is another in which leaves are cut down the middle, and the right halves thrown away and the left used.

In addition to the ordinary massaging there are gentle strokings, some of which appear rather mysterious in their operation. A white man, young and alert, told me that he had a painful swelling on his back, like a blind boil. An old woman came to him equipped with a concave sea-shell with a hole bored through the middle. She lightly outlined with the edge of the shell a square round the swelling, and then placed the shell, hollow side downwards, on the swelling, and gently stroked the shell. There was immediate relief and improvement; the trouble was much better next day, and quite cured in three days.

Less mysterious, and less effective than the white man's stroking the back of a shell, is the practice of holding the stomach of anyone suffering from abdominal pains. The shooting pains caused by wind give rise to much alarm. It is thought that vital parts of the body are leaping out of place, and, quite logically, the friends of the patient seek to hold the restless organ in its proper position. To the Tongan, Europeans probably seem rather heartless in leaving the sick alone as much as they do. Tongans are continually doing something for the patient, holding his head, or massaging his stomach, or what not. It would be very worrying to a sick European, though it must be admitted that much of the stroking and rubbing is extremely soothing. I have known a woman in difficult labour to have all her pains instantly relieved by the gentle pressure of an old midwife's hands.

Toothache, which must be more common now than it was once, is the subject of controversy. Some hold that it is caused by the boring of a little animal, whilst others maintain that it is just a sickness. So far as I have heard the evidence the partisans of the borer theory seem to have the stronger case, as a girl told me that she had herself seen a grub in a man's hollow tooth.

Children's illnesses are often attributed to "remembering," that is pining for an absent relative. A child is ill; remedies are tried in

22: West M-3 (1846-1855) 1865 OU9 Tonga OU9

selves of medical Missionary skill: while, at the same time, they have confessed to the general efficacy of the treatment received, by the entire abandonment of many of the quackeries of their own professional doctors.

These Tonguese doctors, or *kau faitoo*, were a distinct class who confined the knowledge of their art to their own families, and thus made the employment, which was lucrative, hereditary. The practice they followed was a combination of sorcery, and superstitious ceremony, with the administration of herbal medicines, or the external application of medicated oils, or pounded leaves. Unquestionably, their knowledge of the medicinal properties of herbs was considerable; but, not unfrequently, fatal results ensued from their prescriptions. Sometimes, in heathen days, these occurred by design, and at all times their administration might be accompanied by serious accident. For the sake of securing greater secrecy, the herbs are often gathered during the darkness of night. Hence cases have been known, in which a deadly poison has thus become mixed with the intended medicine, and the patient has been destroyed. For the relief of local pain, the natives are great believers in the soothing and curative powers of proper external manipulation and friction, as well as in a liberal depletion, by small gashes, made over the afflicted part, after the style of "cupping." In rheumatic affections, and pains of a kindred nature, the natives employ medicated embrocations, which, I believe, are similar to those mentioned by Dr. Seemann as in use among the Fijians.*

In setting limbs, a few of the Tonguese doctors

* "Viti," by Dr. Seemann, p. 340.

22: West M-3 (1846-1855) 1865 OU9 Tonga OU9

were really skilful; and this may be also said of them, in regard to a few severe and delicate surgical operations which they do not hesitate to perform. It is worthy of remark, however, that they never attempted amputations more serious than those of the fingers; and these were often effected in a most rude and barbarous manner, by either hacking and sawing them off with the edge of a sharp shell, or, in modern times, by the use of knives or carpenters' chisels. Two instances illustrative of these statements may be here given. The first is that of a woman, who came one day to the Mission dispensary, with a diseased finger. It had begun to mortify; and I told her that she must have it amputated at once. To this she assented, and expressed a desire that I should do it there and then. I told her that I was both unwilling and unable to do it myself, but referred her to a native doctor. Accordingly, she went to one immediately, and, waiting patiently until he had sharpened a tool for the occasion, the mallet and chisel disposed of the little member at a single stroke. Such wounds were always healed by cauterization.

The second example of surgical skill we shall adduce, was more refined and complicated. The writer was called upon, in common with other Missionaries, during a native war in the year 1852, to attend many cases of gunshot, and other dangerous wounds. Among the number, we were summoned to visit Joeli Mafileo, the Governor of Haabai, who had been dangerously wounded in the shoulder by a musket-ball. The ball had passed completely through the joint; shattering the bones most severely. When we arrived, we found that the native doctors had already dressed the

22: West M-3 (1846-1855) 1865 OU9 Tonga OU9

752 wound, and we therefore contented ourselves by
797 administering some needful medicine. The progress of the patient, however, was slow; and very unfavourable symptoms appeared from time to time. At length, one of H.M. ships of war arrived at the island, and, under the circumstances, we requested the surgeon to examine the wound, and give his opinion. He accordingly did so, and concluded by saying that it was a case in which no European surgeon would hesitate for an instant. The injury done was so extensive, that he considered the arm must ultimately be lost, if not the life of the patient. Mafileo, however, would not hear of amputation. The native doctors therefore continued the treatment of the case, declaring their conviction that they would save both the arm and the life of the patient. After the lapse of several months, a cure was fully effected. When we left the islands, more than two years had elapsed since the war in which Mafileo received his wound; but he was then well and hearty. Although he could not use his arm, he was saved the pain of dismemberment, and had avoided an unsightliness from which the proud native mind instinctively shrinks. The
752 Tonguese would rather die than submit to the loss
826 of a limb by amputation; although, as we have
304 seen, they are by no means nice about sacrificing a joint or two of the fingers.

797 While upon this subject of medical Missionary effort, we may say that various English Protestant Missions abroad have been greatly indebted for aid in this department, to the Christian testimony, and benevolent liberality, of a gentleman of eminent scientific ability, who visited the Friendly Islands and Fiji, during the year 1855, in the prosecution

54: Cook G,T-5 (1777) 1967 OU9 Tonga OU9

SUNDAY 25*th*. In my walk to day I happened to step into a house where a Woman was dressing the eyes of a young child which was blind; the eyes were much inflamed and seemed to be covered with a thin film. The instruments she used were two slender wooden probes, with which she had probed round the eyes so as to make them bleed; she had almost finished the opperation when I went in so that I saw but little of it.[1] In the same house another women was shaving a Childs head with a Sherks tooth stuck into the end of a piece of stick, she first wet the hair before the razor with a rag diped in water; the opperation gave no sort of pain to the Child although the hair was taken off as close as any of our razors would have done it,[2] I tryed one and found it an excellent succedanuem. But the men shave the beard with two shells, one of which they place under a small part of the beard and with the other scrape that part off;[3] in this manner they will shave very close, the opperation is rather long but no ways painfull and there are men who seem to profess it, and it was as common for to see some of our men sit to be shaved by these shavers, as it was for the Chiefs to come aboard to be shaved by our Barbers.[4]

Finding we got little or nothing where we lay,[5] I resolved to change our station and wait Feenoughs return in some other place; accordingly in the fore noon of the 26th we got under sail and Mon. 26 stood to the Southward along the reef of the island, having 14 and 13 fathom water a sandy bottom. We however met with several detatched Shoals, some were descovered by breake[r]s, some by the Water upon them appearing discourlered and others by the lead. At half past two PM having past several of these shoals and seeing more

were said to be at Huahine; and he was to have another one, p. 196 below. '. . . the man gave such answers & drew the number of the masts upon the sand, as to stagger us & put some confidence in the report, the fellow was very ready to go in our boats to prove the truth of his tale.'—King.

[1] Mariner has an interesting paragraph on Tongan ophthalmia and eye-surgery, II, p. cii: ending, 'Mr Mariner neither saw nor heard of but one man who had lost his sight by disease'.

[2] 'an absolute falsity [it] will not take it off so [well] as scissors.'—Bligh AL, I, p. 260.

[3] 'this is a better [plan] and they cut their bea[rds] off pretty close.'—Bligh AL, I, p. 261.

[4] 'none of our Sailors could bear it & none more than once try['d how] they liked the meth[od].'—Bligh AL, I, p. 261. Cf. Ellis, I, p. 93, on Tongan feelings in the matter: 'This operation [with shells] however is rather painful and tedious, and observing how expeditious and clean we performed it, they were desirous of trying it also; and it so far exceeded their expectations that scarce a day passed without plenty of customers.'

[5] 'But we have purchased almost all their commodities; they having very few things to dispose of except their young Girls which seems to be almost the only trade at present, & indeed is very advantageous to the men, for they are paid a hatchet for every nights lodging, or a Shirt.—This seems the Common run of trade—but in some instances I have seen two hatchets & a shirt or sheet given for a Nights lodging with a fine young Girl.—The men receive what is agree'd for & leave them on Board, & come for them again the next morning, & if the girls get any thing more they take it away the moment they come.'—Bayly T, 28 May.

55: Anderson D,T-5 (1777) 1967 OU9 Tonga OU9

of the peoples property. On coming to the point they mention'd some thing of a person who they said had been fir'd at by some of our people, and upon our wishing to see him they carried us to a house where we found a man who had been shot through the shoulder, but not dangerously, as the ball had enterd a little above the inner part of the collar bone and pass'd out obliquely backwards. We were sure from the state of the wound that it was the person who had been fir'd at by the centinel the day the others were punishd, though positive orders had been given that none of them should load their pieces with any thing but small shot. There had been no application made to it and the people about him seem'd to be very little concern'd at the accident, nor indeed the man himself farther than his being oblig'd to sit still from the pain and swelling which was considerable. We gave them some directions how to manage it & they seem'd pleas'd when we told them it would get well in a certain time: but what is singular, on our going away they ask'd us to send him some Yams & other things for food, and in such a manner that we could not help thinking they imagin'd it was our duty to support him till he should get well.[1]

In the evening we cross'd the Bay in a Canoe which Futtafaihe had excercisd his prerogative in procuring by calling to the first that pass'd by, and found fault with the people because they did not seem to come immediately as they were calld to. He had also got a large hog at this place and brought a servant from his house with a bundle of cloth which he wanted us to carry as a present from him, but the Boat being small we objected and he order'd it to be brought over next day.

We got off the remaining horses, Cattle and sheep as preparatory to our leaving the place.

WEDNESDAY 2d. The wind SE. Moderate breezes with dull cloudy weather and some rain in the morning.

[1] Compare King's account on the Tongan point of justice. They went to the man, '& found him in a very grave temper, with his wife & some friends sitting by him . . . nature was doing her part, the seperation had begun, & the Doctor said he did not doubt, but left to itself it would have done well; the parts about were swell'd & inflam'd & the man complaind of not being able to lay himself down; we had about us some linnen & the Doctor cleand the wound & applyd some lint to the place, & made them well understand, how they were to proceed in future, he direct'd them to clap a Poultice of Plantain, but we were a little surpris'd on his wifes not asking as a favour, but as matter of justice something to buy him Plantains, & not for this purpose only, but food for her family, saying that they had nothing of their own, living upon the labours of the wounded man who was a Fisherman, & that as we had depriv'd him of earning his & their livelyhood, we should keep them; We had a long Altercation on this point, but some grave old men nodded in favour of our arguments when we told the woman, that had he been fishing for his family when he attemptd the theft for which he was punishd, she woud not now have want'd our assistance. The man recover'd his spirits instantaneously on our assuring him that he woud not die of this wound.'—Adm 55/116, f. 93v.—In the Tongan context, the idea of 'buying' plantains is rather surprising.

55: Anderson D,T-5 (1777) 1967 OU9 Tonga OU9

tumour which affects the legs & arms & increases them to an extraordinary size in their whole length: and the other a tumour of the same sort in the testicles which sometimes exceed the size of the two fists,[1] but in other respects they may be consider'd as uncommonly healthy, not a single person having been seen confin'd to the house by sickness of any kind. On the contrary their strength and activity are every way answerable to their muscular appearance, which they exert both in their usual employments and diversions in such a manner that there can be no doubt but they are as yet little debilitated by numerous diseases, the consequences of indolence and an unnatural method of life. The gracefull air and firm step with which these people walk are not the least obvious proof of their personal perfections. They consider this as a thing so natural or so necessary to be acquird that nothing us'd to excite their laughter sooner than to see us frequently stumbling upon the roots of trees or other things.

Their countenances express very remarkably the abundant mildness & good nature which they posess, and are entirely free from that savage keenness which marks nations in a barbarous state. They would indeed rather perswade one to believe that they had been bred up under the severest restrictions to acquire an aspect so settled, and such a command of their passions as well as steadiness in conduct, but they are at the same time frank, chearfull and good humour'd, though sometimes in the presence of their chiefs they put on a degree of gravity and such a serious air that becomes stiff or aukward & has an appearance of reserve. Their peacable disposition is sufficiently evinc'd from the friendly reception all strangers have met with who have visited them. Instead of offering to attack them openly or clandestinely, as has been the case with most of the inhabitants of these seas,[2] they have never appear'd in the smallest degree hostile but on the contrary like the most civiliz'd nations have courted an intercourse with them by bartering, the only medium which unites all nations in a sort of friendship. In short they seem posess'd of many of the most excellent qualitys that adorn the human mind as Industry, Ingenuity, Perseverance, affability and perhaps

[1] These two other 'diseases' are one: they are both aspects of the elephantiasis which results from the mosquito-carried filariasis, which is the real disease. The Tongans used surgery to treat the scrotal swelling—Mariner, II, pp. ci–cii; they did nothing about the legs or arms, according to him, but Samwell speaks of 'the Scars of large Gashes . . . seemingly with the Intention of letting out the Contents of the Tumor'.—p. 1045 below.

[2] Mariner's account (II, pp. 71–2) of the contemplated attack on the ships appears to give the lie to this; but he has the later statement, II, p. 138, 'In respect to the intended assassination of Captain Cook, every native of Tonga would have considered it, if it had taken place, a very base act, for which probably the gods would have punished them.'

55: Anderson D,T-5 (1777) 1967 OU9 Tonga OU9

an idea of such rigorous discipline that must require either an uncommon degree of affection or the grossest superstition to exact. I will not say that the last has no share in it, for in some cases it is so universal that many could not have any knowledge of the person for whom the concern is express'd—such for instance as the case mention'd of the people of Tonga mourning the death of a chief at Va'vaoo; unless we allow that it is customary to have a general mourning for persons of eminence, as seem'd to be the case on our arrival at Tonga, when a great number of the people who had been with us at Annamooka cut off their hair for a chief who had died at Tonga a month before, and at the same [time] it should be observ'd that the painfull operations are only done by the nearest connections. When a person dies he is buried the same day, after being wrapp'd up in matts and cloth, much after our manner: the chiefs in this case having the Fyatockas appropriated to them but the common people are interr'd in no particular spot. What part of the mourning ceremony follows immediately after is uncertain, but that there is something besides the general one we were inform'd of from the death of Mareewagges wife, who died while we were there and was to have five days spent for that purpose by all the principal people in commemoration of her.

Their long and general mourning proves that they consider death as a very great evil, and this is confirm'd by an odd custom they practice to avert it, for when they suspect themselves in danger from sickness they cut off their little finger as a propitiation to the Deity. The operation is perform'd with one of their stone hatchets with which they make a tolerable stump, but never cover it afterwards, leaving these and all other sores expos'd to the air; nor do they seem to have any method of assisting the cure of diseases of any kind, the only instance I saw being some incisions made in a large swelling in a mans arm to discharge the matter by. There is scarcely one in ten but are thus mutilated in one or both hands (which is sometimes done on the illness of their chief as well as themselves) and has a disagreeable effect, many being cut so short that they have incroach'd on the bone of the hand which joins to it.

There is another custom amongst them call'd Taboo whose precise meaning we do not well understand. The word itself implys no more than that a thing is not to be touch'd, and therefore every thing that is under such restriction for certain reasons is said to be Taboo'd. It seems a custom of great force and extent and in some measure may be reckon'd of the sacred or religious cast, relating to things hallow'd and forbidden. Thus the Fya'tocka at Poulaho's house was not to be

56: Samwell D,T-5 (1777) 1967 OU9 Tonga OU9

our Cloth & matting very strong & neatly made, some of these are 291
brown others quite white & they are always fringed. They have also
various kinds of Matts with fringes & tossels worked on them which 292
they wear upon extraordinary Occasions, they also wear over all
round the middle a dress made of Leaves more for ornament than 301
use, & they wear one like it but less about their necks, which they
also ornament with Necklaces made of Shells, but these soon gave
way to our blue beads of which they were extravagantly fond both
men & women. The common Dress of the Chiefs & which seemed to 565
distinguish them from the common people was a large piece of Cloth
round their waist & plaited at the upper part, which is done by the 291
women with the same Care & nicety as Shirts are plaited in England
tho' the folds are not near so fine. This was no unbecoming Dress [302]
they oil their Hair & Shoulders with Cocoa nut oil after bathing, &
thus dress'd and decorated an Amsterdam Chief cuts no despicable
appearance. They wear their Hair long, flowing over their Shoulders, 302
but they are obliged to cut it off on particular Occasions such as the
Death of the Chiefs or of their relations, and for the same Reason 763
both men & women & even Children cut off their little fingers: many 304
of them have both cut off, there are but very few that have not lost
one, they cut it off just underneath the first joint, tye up the Stump 752
with grass & leaves[1] & it soon heals, they cut them off with stone
Chizels & then bury them in the ground. Their Arms & Cheek bones 304
are also marked in memory of the dead. Their walk is strait & 765
majestic & their manners free & open. In their Dispositions they are
friendly hospitable & humane, very tender to & careful of old People 181
and the Sick, & civil & obliging to each other, treat their women well. [516]
I was much pleased with the following instance of their gratitude
which I happened to be a witness to. A large Sailing Canoe having 431
got her rigging entangled with the Resolution's driver boom was in
danger of carrying away her Mast, & the Indians had made several
Efforts but in vain to disengage it, which a young Gentleman who
had the Watch upon deck observing ordered one of the Men to
assist them, who thinking it no part of his duty growled about it &
was very unwilling to go, on which the gentleman jumped on the
boom himself & got the Canoe clear; the Indians then insisted upon
his accepting a large bunch of Cocoa nuts as a present for the Service
he had done them, but this he would not accept tho' he was much
pleased with the Offer.

[1] There can have been no uniformity of treatment. Anderson speaks of no treatment at all; Mariner says (II, p. 179) that after the operation the stump was merely 'held in the smoke and steam arising from the combustion of fresh-plucked grass', this stopping the flow of blood.

56: Samwell D,T-5 (1777) 1967 OU9 Tonga OU9

about the wrist which preserves the use of the Hand & keeps it free from the least Tumefaction. We observed the Scars of large Gashes that had been made lengthwise upon all of them, seemingly with the Intention of letting out the Contents of the Tumor, but without Effecting a Cure as it appeared from the State we saw them in.

The Language of these People is the same as that of Otaheite with some little difference; Omai conversed with them with ease & the two New Zealand Boys were pretty well understood by them.

The following Words present a short Specimen of their Language

A Man	Tangada	The Back	Tooha
Woman	Phapheenee	The Breast	Fadafada
Boy	Tamajee	A Woman's Breast	Hoo-hoo
Chief	Agee	The Belly	Kedee
common person	Tooa	The Navel	Peedo
a Dog	Gooree	Thigh	Denga
a Hog	Booaga	Knee	Doohee
a Cock	Moa	Leg	Foi-va-e
a Bird	Manoo	Ankle	Toongai-va-e
The Forehead	Lahe	Foot	Dooa-va-e
Eyes	Mada	Great toe	Motoo-ava-e
Eyelids	goomada	Hip	Difidolanga
Eye brows	fooroo-fooroo-mada	Chin	Koomoo-coomoo
The Head	Oooloo	Beard	Cava
The Hair	Lo-ooloo	Their Cloth	Ngadoo
The Nose	Ee-hoo	Our Cloth	Papalangee
Teeth	Neefo	Fine Matts	Ngafee ngafee
Nostril	Avaihoo	Coarse Matts	Efala
Cheek	Cowahai	a nail	Fa-o
Lips	Longootoo	a File	Geel-ee
Tongue	Alelo	a Knife	Helee
Gullet	Pougeea	a Hatchet	Togee
Ears	Telinga	a Canoe	Vaga
Neck	Keea	a Bow	Cawfana
Shoulder	Ooma	an Arrow	Ca-ho
Arm	Neema	a Quiver	Gofe
back of the Hand	Tooaneema	a Paddle	Fo-he
Palm of the Hand	Afineema	a fishing net	Coobenga
Forefinger	Toohoo	an wooden dish	Coomedee
Middle finger	Lodo	a Club	Too-ee
Ring finger	Haia		Caw
Little finger	Loohee	Carved	dongee
Thumb	Modooaneema	Plain	dala
Elbow	Tooineema	a fish Hook	Ba

[183 cont.]

142 had ever seen in these isles, full of sweetness and the charms of youth.
175 Her large dark eyes sparkled with fire, and her ebon curls floated
[291] on her neck. She was of a lighter colour than the common people and wore a brown cloth which closely embracing the body immediately under the breast, but being somewhat wider [184] towards the feet, perhaps suited her better than the most elegant European dress.

648 Mr. Patton having been sent for, arrived with proper instruments,
175 and dressed the wounds of the poor native, whose countrymen brought
[152] many banana leaves, which were laid on over the dressing. A bottle of brandy was given them, with directions to wash the wounds with the liquor from time to time. The wound was not dangerous, as it happened in a fleshy part; but as the distance was so short, the shot had torn the flesh very much, and made the wound very painful to the poor man. After this we distributed some beads, and departed making various signs
499 of friendship. The natives like those of Tonga-Tabboo, were strangers
175 to resentment, and continued to trade with our ship as before. They seemed to possess a truly mercantile spirit, and spared no trouble
[184] to obtain some of our goods or curiosities. Among the rest, they were much delighted with a great number of young puppies which we had taken on board at the Society Islands, on purpose to stock such islands as were not provided with them. We left two couple on Namoka, of which
502 the natives promised to take particular care. These people managed
481 their canoes with surprising agility, and swam with the greatest ease.
175 Their common trading canoes were neatly made, and polished like those
501 which I have already described. But those of the neighbouring islands
175 were of a great size, and some [185] of them contained upwards of fifty people. They always consisted of two large canoes, fastened by a

76: Yuncker N-4,5 (1953) 1959 U9 Tonga OU9

Genus **Cyathula** Loureiro

137 **Cyathula prostrata** (Linnaeus) Blume, Bidjr. Fl. Java., 549, 1825.

Low, subprostrate, pubescent herb, the slender stems spreading and rooting at lower nodes. Leaves opposite, rhombic or ovate, acute at both ends, up to 5 cm. long and 2 cm. wide, petioles up to about 1 cm. long. Flowers very small, in loosely flowered clusters, in slender, elongated, terminal, spikelike racemes, reflexed in fruit, perianth segments becoming rigid, hooked awns.

'Eua: in forest clearing near summit of eastern ridge, Mar. 30, 1953, *Yuncker 15562.*

Vava'u: *Barclay; Crosby.*

Tafahi: along road, depression of former crater on summit of Piu 'o Tafahi, Dec. 11, 1951, *Hürlimann 451.*

Niuatoputapu: on hillside above Hihifo, Dec. 5, 1951, *Hürlimann 335.*

A plantation and waste area weed throughout the group. Pantropic.

Tongan name: *tolomo'unga.*

Genus **Achyranthes** Linnaeus

Achyranthes aspera Linnaeus, Sp. Pl., 204, 1753.

Coarse, erect or decumbent herb, up to 40 cm. or more tall, pubescent in younger parts. Leaves opposite, oval-obovate, acute, base wedge-shaped, entire, up to 12 cm. or more long, petiole 1-2 cm. long. Flowers small, greenish, sessile, in a long, slender, usually simple, terminal spike; fruit dry, about 5 mm. long, abruptly reflexed.

Tongatapu: *Moseley;* weed in waste area near sea below village of Niutoua, Mar. 2, 1953, *Yuncker 15137.*

'Eua: *Lister;* trailside weed on sea-facing terrace near Lokupa, Mar. 27, 1953, *Yuncker 15517.*

Lifuka: weed in plantation near sea above Pangai village, May 10, 1953, *Yuncker 15800.*

Vava'u: *Barclay.*

Tafahi: roadside weed, Dec. 15, 1951, *Hürlimann 540.*

A common plantation and waste area weed throughout the group. Pantropic.

Tongan name: *tamataima.*

[304] [752] [824] Used to tie up wound in circumcision.

Genus **Alternanthera** Forskål

Alternanthera sessilis (Linnaeus) R. Brown, ex Roemer and Schultes, Syst. 5: 554, 1819.

Spreading, subprostrate, branching herb, rooting at lower nodes, internodes with two pubescent lines. Leaves opposite, narrowly elliptic-obovate or oblanceolate, obtuse or acutish, base cuneate, entire, up to 5 or 6 cm. long, petiole up to about 1 cm long. Flowers small, scarious, sessile, white, in compact, axillary, headlike clusters.

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[For a list of Tongan words on disease and medicine, see Category 192, pp. 14-19.]

78: Weiner N-4,5 (1969) 1972
OU9 Tonga OU9

101 square miles. Nuku'alofa, with an approxi-
162 mate population of 15,000, is the largest city in Tonga and the capital (14).

II. A Review of Medical Practices in Tonga

175 A fairly detailed description of medical
114 practices in Tonga is found in *William Mariner's Account of the Natives of the*
177 *Tonga Islands* (17, pp. 240–273). This account was related to J. Martin by William Mariner, who was shipwrecked somewhere in the archipelago in the early 1800's. The first Europeans to arrive in Tonga were missionaries sent out by the London Missionary Society in 1797.

757 Martin reports that around the year 1800
[759] few plants were used in treating illness. Sickness was thought to originate from an outside force, and all remedies used by the Tongan were reasonably categorized by Martin into three groups: invocation, sacrifice, and external operations. When plant remedies were employed, they had no effect either upon the disease or the patient. Martin states that such remedies were held in "little esteem," for when the reigning king's daughter became seriously ill plant medicines were not considered (17).

752 Martin does refer, however, to the uses
278 of three plants. To reduce opthalmic inflammations, the juice of the *vi* (*Spondias dulcis*) was used. Following circumcision, the end of the penis was wrapped in the leaf of *gnata'i* (*Erythrina* spp.?). And the ulcerated sores of venereal diseases were treated with powder of turmeric from the fleshy rootstock of *Curcuma longa*.

757 Martin states that "the idea of giving
177 (plant) infusions was first taken from the natives of the Fiji Islands." The Tongan
177 also learned the practice of surgery in Fiji, where constant wars afforded great oppor-
752 tunities for practicing this art. The three most important operations then practiced in Tonga were *cawso*, or paracentesis thoracis (drainage of fluid from the chest cavity); *tocolosi*, or an operation to cure tetanus; and *broca*, or castration.

755 Charms and amulets were not employed
[782] in ceremonies for the patient. Sacrifices were common, and horrors such as *tootoo-*

278 layer, which might contain foreign matter, is removed by scraping. The inner bark is then removed and utilized in medicines.

An important ingredient in many plant remedies is "Tongan oil." This is prepared by pounding together the endocarp of the nuts of *Aleurites moluccana* with the leaves or flowers of *Melastoma denticulatum*, *Decaspermum fruticosum*, *Cinnamonum* spp., and *Coleus amboinicus*. Into the mixture is added the oil of grated coconut flesh, and the intermediate product is allowed to set overnight. The following day the mass is kneaded and pressed against a sheet of corrugated iron, and the "Tongan oil" flows off the sheet into a waiting basin. Fragments of plant parts are strained out through a piece of tapa cloth, and the remaining mixture is left in the sun to evaporate the moisture. The oil is then poured into glass bottles stopped with tapa and stored until ready for use (15). Massaging accompanies 757 most remedies, and the oil is usually used for this massaging.

753 Illnesses have been categorized into three divisions by Collocott (7). One large group is characterized by illnesses thought to be 752 caused by ghosts of deceased relatives. The second group comprises disorders such as broken bones or sprains which are called 753 *fasi* and are usually treated by massage. The third class is composed of skin disorders and include boils, ulcers, rashes, and tumors. Thi class is known in Tonga as *hangatamaki*.

276 Several questions pertaining to folk medicine in Tonga remain unanswered. Why is there no record present or past of the employment of hallucinogenic or narcotic plants by the Tongan in his medical or religious rites? Has there been less need for these agents than in many areas of South America and Asia? Have these Pacific islanders been 137 less inquisitive about their flora? There are several plants used as psychomimetics or narcotics in other parts of the world that are found in Tonga: *Datura stramonium* L. (5), *Capsicum* sp. (26), *Solanum nigrum* L. (21), and a few species contain ergoline alkaloids capable of producing psychomimetic reactions. The plants include *Ipomoea pescaprae* (L.) Sweet, *Argyreia nervosa* (Burm. f.) Bojer, and *Stictocardia tiliifolia* (Desrou.) Hallier.[2] Barrau (2) reports *Zingiber* 000

[p. 426-A]

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Further reassurance regarding the consistency of plant names came while I was drying plant material later to be used as crude drug samples. As individual trays of desiccated leaves and bark were removed from copra driers, Tongan workers who had inquisitively gathered would attempt to call out the identity of the dried contents before the attached identifications were exposed. Most men were able to identify the plant names correctly, relying solely on their ability to interpret the scents and shapes of the desiccated samples.

V. Enumeration of Tongan Medicinal Plants

Specimens of 59 species of plants were collected on Tongatapu Island. The plants were identified by using Yuncker (32) and also by a study of specimens available at the Herbarium of the Bishop Museum. Final determinations were established by Dr. A. C. Smith of the University of Hawaii. Voucher specimens are on deposit at the Bishop Museum.

Following is an enumeration of plants utilized as medicines by the Tongan people. This list includes my own observations as well as those reported in the literature. Families, genera, and species are arranged alphabetically. Tongan vernacular names and geographical distributions of each species, as given by Yuncker (32), are included. The medicinal applications of each species in some other regions of the Pacific are enumerated to show their popularity in use.

AMARANTHACEAE
(Amaranth Family)

ACHYRANTHES ASPERA L.

tamatama

This pantropical species is common throughout the archipelago.

In Tahiti the roots are used in treating mouth sores, toothache, and syphilitic sores (19). It is reported that the plant is employed in medicines in Niue (31). In the Philippines the leaves and roots are valued as diuretics and the sap for treating cataracts (21).

In Tonga the leaves are used to tie wounds after circumcision (32), and after

[p. 436-A]

278
[752] being chewed are applied to serious wounds. The sap from leaves heated over a fire is
[757] valued in treating tetanus.

278 ANACARDIACEAE
(Mango Family)

137 RHUS TAITENSIS Guill.
tavahi

This tree is found throughout Tonga and ranges from the Philippines to Polynesia.

278 In Tahiti the plant is used as an anti-
[171] diarrheic but is considered a dangerous medicine (19).

In Tonga it is reported that the leaves are employed in medicines (32).

278 SPONDIAS DULCIS Parkinson
137 *vi*

This tree, occasional in Tongan villages, is a native of Malaysia. It is an aboriginal introduction to Polynesia.

278 In Tahiti parts of the plant are made into
171 a fermented drink that is valued as an anti-diarrheic (19). In the Philippines it is reported that the fruit is used in treating dysentery (21).

278 An extract of the bark is considered
757 efficacious in treating diarrhea in Tonga.

278 ANNONACEAE
(Custard-Apple Family)

137 ANNONA MURICATA L.
apele

Originally from tropical America but now cultivated in many tropical countries, this small tree is occasional in Tongan villages.

278 In the Philippines the ripe fruit is thought
[171] to have antiscorbutic properties and the unripe fruit is employed in treating dysentery (21).

[757] In Tonga the leaves, pounded and prepared in an infusion, are utilized in treating stomach problems.

278 CANANGA ODORATA (Lam.) Hook. f. & Thoms.
mohokoi
137

This species, originally from southern Asia, is cultivated throughout Tonga.

Species of *Cananga* from the Yalu region in New Guinea are said to contain alkaloids (30).

[p. 436-B]

A [Cf Achyranthes aspera L.--
A Analyst.]

278 137

COMPOSITAE
(Composite Family)

AGERATUM CONYZOIDES L.

te'ckosi

This herb is common throughout Tonga. Native to South America, it is now distributed pantropically.

278 171 In the Philippines the leaves are pounded and mixed with salt, the preparation being valued as a vulnerary. The leaves are also cooked in coconut oil and applied to wounds. The plant is used widely in other countries (21).

278 752 In Tonga the leaves are pounded and the juices applied to infected wounds.

BIDENS PILOSA L.

278 137 *fisi'uli*

This plant, found throughout Tonga, is distributed widely in tropical countries.

278 171 In the Philippines flowers of this species are mixed with balls of boiled rice and set to ferment in the manufacture of crude spirits. Usage is reported from Brazil, Mexico, Malaya, Indo-China, and Africa. The leaves are official in the Dutch and Mexican Pharmacopoeias (21).

278 757 In Tonga an infusion of the leaves is valued in treating stomach problems and in cases of food poisoning.

WEDELIA BIFLORA (L.) DC.

278 137 *ate*

This shrub is found along rocky coasts throughout Tonga. It is distributed from Malaya and southern Asia to Polynesia.

278 [171] In the Philippines a decoction of the fresh roots is considered to be diuretic and to act as an emmenagogue. Other usage is reported (21).

[752] [757] In Tonga the leaves are pounded between two stones which have been preheated in a fire and the juices applied to serious wounds. Koch (15) reports that this remedy is resorted to in cases of tetanus.

278 137

CONVOLVULACEAE
(Morning-Glory Family)

IPOMOEA CONGESTA R. Br.

fue'aepuaka

This vine, frequent in Tonga, is distributed from Formosa to tropical Australia and Polynesia.

[p. 438-A]

278 171 capsules is employed to alleviate migraine headache, and the yellow latex is applied to insect bites (19). In the Philippines a decoction of the leaves is considered a cure for itches. Other economic applications are reported (21).

278 757 856 A drink prepared from the ripe leaves and bark is given in Tonga to teething children who run a fever and have an excessive saliva flow.

278 137 UREna LOBATA L.

mo'osipo

This common pantropical weed occurs in Tonga.

278 171 In Samoa the leaves are applied locally in filarial swellings (12). The plant is used in Tahiti as an emmenagogue (19). In the Philippines a decoction of the root is valued for colic, the boiled leaves are applied as a poultice in inflammations of the intestines and bladder, and a decoction of the roots and leaves valued as an emollient (21).

278 [752] [757] In Tonga the leaves are squeezed by hand and poulticed to burns and scalds. An infusion of the roots and leaves is considered a cure for diarrhea.

MELIACEAE

278 137 (Mahogany Family)

AGLAIA SALTATORUM A. C. Sm.

langakali

This shrub is found throughout Tonga and in Fiji and Niue.

278 [171] In the Philippines a decoction of the roots and leaves of *A. odorata* Lour. is esteemed as a tonic (21).

In Tonga the bark is employed in medicine.

278 137 DYSOXYLUM FORSTERI (Juss.) C. DC.

mo'ota

This tree is endemic throughout Tonga.

278 171 Species of *Dysoxylum* from several regions of New Guinea proved positive in tests for saponins and other steroids (30). In the Philippines a decoction of the juice of the fresh bark of *D. decandrum* is used for coughs (21).

278 757 The steam from the leaves of this plant (when pressed in a basin of boiling water) is inhaled in Tonga to cure headache and reduce fever.

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278 PHYSALIS ANGULATA L.
137 *polo pa*

This herb, an occasional weed in Tonga, is distributed widely in warm countries.
278 Yuncker (32) reports that in Tonga the leaves are used medicinally.

278 PHYSALIS PERUVIANA L.
278 *ku'usi*
137 This pantropical species is an occasional plantation weed in Tonga.
278 In Tahiti parts of this plant have diuretic value and are used also in treating abscesses
171 and for conjunctivitis (19). Quisumbing (21) reports usage in other countries.
278 According to Yuncker (32) the leaves are employed in medicine.

278 SOLANUM UPORO Dun.
278 *polo tonga*
137 This plant is occasional in Tonga and occurs also in Tahiti and Rarotonga.
278 Papy (19) reports that in Tahiti the plant is used as a sedative, as a diuretic, for con-
171 junctivitis, and in treating abscesses.
278 A drink made from an infusion of the leaves is used to reduce filarial swellings.
757 The crushed leaves are applied to boils, fungal infections, and tumors of the breast. Because of the wide usage of this plant detailed chemical and pharmacological analysis should be undertaken.

278 **THYMELAEACEAE**
137 **(Akia Family)**

WIKSTROEMIA ROTUNDIFOLLIA (Forst.) Decaisne
lala vao

This species is found in Tonga and Niue.
278 Yuncker (32) reports that in Tonga a physic is prepared from an extract of the root.

278 **TILIACEAE**
137 **(Linden Family)**

TRIUMFETTA BARTRAMIA L.
mo'osipo

The bur bush is frequent throughout Tonga and is found also from Malaya through the Mariana Islands and Polynesia.
278 In the Philippines a decoction of the roots
[171] is used for treating intestinal ulcers (21).
In Tonga the leaves are crushed and
[752] applied to burns and scalds.

[p. 445-B]

78: Weiner N-4,5 (1969) 1972
0U9 Tonga 0U9

278 plied locally to wounds and used for tooth-
171 ache (27). In the Philippines, scrapings from the bark of *P. arborescens* are applied to boils (21).

278 In Tonga the bark and leaves are valued for medicinal purposes (32).

278 **VERBENACEAE**
(Verbena Family)

137 CLERODENDRUM INERME (L.) Gaertner
tutuhina

This shrub is frequent near the shore in Tonga and occurs also from India through Malaya eastward to Polynesia.

278 Hunt (12) reports that the leaves of this species are used in Samoa in treating fevers.
171 In the Philippines, a decoction of the roots is taken as a febrifuge and the leaves are applied as poultices. Quisumbing (21) also reports other usage. The sailors of Macassar employed a decoction of freshly pounded seeds to offset the effects of eating poisonous seafoods—fish, crabs, etc. (21).

278 An infusion of the pounded bark is drunk
757 in Tonga as a remedy for liver disorders and in treating ulcers.

278 LANTANA CAMARA var. MIST (L.)
L. H. Bailey
137 *talatala*

This plant is occasional in Tonga and is distributed pantropically.

278 In the Philippines a decoction of the fresh roots is gargled to relieve toothache (21).
171 Diguangco (8) reports that the pounded leaves are used to reduce inflammations and that a lotion is prepared for treating rheumatism. He states also that the active constituent—lantanine—is an alkaloid that acts like quinine in reducing fever and slowing circulation.

278 In Tonga, the leaves are chewed until moist and applied to cuts. A variation of
752 the above treatment consists of warming the leaves near a fire and then applying the plant juices directly on the cut or wound.

278 PREMNA TAITENSIS var. RIMATARENSIS
F. H. Br.
137 *volovalo*

This species is frequent in Tonga and ranges also from Fiji eastward to the Marquesas.

[p. 446-B]

/39 cont./

164 177 262

84. See the chapter "Food" p. 275 ff.; the present very high prices for copra (chief export product) make it possible for every native to buy wheat flour, sugar (both often by the sackful), canned meat, fish and fat, and other food imported from Europe.

could be the frequently observable dental defects of young Tongan men and women, (85)

[752]

85. According to circumstances, defective, aching teeth are not filled but extracted, at any rate on the small islands.

as well as the striking occurrence of partial baldness among middle-aged and older males. (86)

86. This is not yet mentioned in the old sources.

166 177 It seems noteworthy that venereal diseases are not widespread in Tonga.

[161] Summarizing, one may say that in this Archipelago the increase (or intensification) of diseases caused by European influence have had no devastating effect on the population which, in the last 30 years, has doubled and in the preceding decades (with the exception of the influenza epidemic of 1918) remained on approximately the same level.

Health Care

657 744 There is an organized system of health care today in Tonga, the beginnings of which go back to the missions, while now it is exclusively run by the government. All natives have a right to free medical and dental (tooth extraction and filling) treatment financed by the Tongan state. This treatment is at present carried out in the entire Archipelago

657 744 759 by a white physician known as "chief medical officer" /cited in English/, by a second (pensioned) white physician who as "medical officer" /cited in English/ has an advisory function, by approximately 20 Tongan assistant physicians ("medical practitioners" /cited in English/) and assistant dentists ("dental practitioners" /cited in English/), by

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instruments which are nontheless still used. The dispenser working there often forgets his stethoscope when he makes house calls (he keeps it hanging in the open window in the rain); he often makes a diagnosis without touching the patients, and as medicine he dispenses mainly two kinds of tablets; the quarterly health inspection entrusted to him (dwellings, water supply, latrines) on the four islands in his charge he fails to carry out even annually, and then only very superficially.

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The few whites working in Tonga can naturally not take the drastic action they would in a colony, though they make a successful effort to keep "the machinery running." There are, however, several examples of surgical operations quite skilfully carried out by Tongan physicians, and in general this European system of health service has undoubtedly brought about many an improvement for the natives.

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One achievement of the modern health service is the repression of the hookworm disease which formerly occurred rather frequently. It was combatted by the Tongan government with aid from a Rockefeller grant; around 1930, cement latrines were widely introduced. Today most Tongan families (88)

88. The author's count in 'Uiha/'Uiha and Fungamisis/Vava'u in 1952 showed, for example, that of 100 households (45 respectively) 83 (40 respectively) have cement latrines.

have such latrines which they /41/ can buy at a very low price from the government and "finish" as they wish.

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[758]

The fight against tuberculosis, however, is still very much in its beginnings. It is altogether unclear how many natives are afflicted with this disease; the simple mass examinations in the schools have not been able to give a reliable picture. The wherewithal is apparently lacking for combating it on a large scale. On the smaller islands of the

/43 cont./

757 8. Diarrhea in children (common type). The grated rind of the mo'osipo root and mo'osipo leaves pounded between two stones are together wrapped in kaka 'i niu (see no. 3) and then put in cold water. The sick child is supposed to drink two mouthfuls of this liquid.

752 10. Cuts. The leaves of the ate plant are pounded between two stones, wrapped in a piece of clean tapa and squeezed out so that the liquid runs into the cut. This remedy is also tried in the case of tetanus. The leaves of the Tongan cotton plant (vavae Tonga) are used in the same way in treating wounds.

757 11. Carbuncles. The yellow leaves fallen from the 'ovava tree (Ficus obliqua Forst.) are chewed and applied to the affected part along with the saliva.

12. Filariasis. The grated rind of the pukovili tree is wrapped in kaka 'i niu (see no. 3) and put in cold water. The patient must drink this twice a day.

177 /44/ The change initiated by the European system of health care will undoubtedly become greater in the course of the next few years, especially since the coming generation, if only as a result of school training, will have more confidence than have their elders in the European medical art. But even today, with respect to their attitude toward "modern health care," the Tongans probably do not compare unfavorably with European peasants in the non-industrialized zones.

b) Care of Body, Hair Style

Care of Body

177 515 Naturally, contact with the European world led to certain changes in the care of the body. The Tongan preserved his old sense of cleanliness, (97)

97. Cf. J. Cook, Beschreibung...

/52 cont./

291 be uncomfortable. They adhere to this not so much because of the law, but because they realize that the shirt means civilization, an approximation of the respected world of the whites, and that the naked torso /53/ is something "barbaric." (129)

[126] [123] 129. The author had difficulty, in photographing Tongans, to persuade them to remove their shirts, for they did not want to look "like savages"; when they go fishing, many Tongans enter the water fully clothed, that is, with shirt and vala.

[186] [565] The vala owes its firmly entrenched position, however, not only to a certain national pride, but also to the fact that it has become an article of clothing of the commoners who were once underprivileged.

291 177 [752] The Tongans usually go barefoot, as in olden times. Some natives wear shoes after a foot injury, to let the wound heal, and today there are also some young Tongans on the small islands as well as in the seaports who wear white tennis shoes, only because they find it "nice," because it looks "European," whereas some employees in the government and in the large department stores like to wear leather sandals. Most Tongans also still go bareheaded. Only now and then they wear old felt hats, sun helmets and hats plaited of halved coconut palm leaves; (130)

130. For example, simple-shaped hats that college students like to make, and others that imitate certain European models (tata faka-polisi=police caps, helemiti=sun helmets).

sometimes they also wrap a cloth around their heads as a protection against the sun, just as people formerly protected themselves against the sun's rays, for example, on the plantations and on the sea, with various kinds of head coverings. (131)

131. Cf. J. Cook, Beschreibung...loc. cit. VI. p. 280; J. Martin, loc. cit. I. p. 167; J. Dumont d'Urville, Voyage pittoresque... loc. cit. II. p. 78.

824 178 [372] [752] [524] /162 cont./ (old); serves to deep fire smoldering (old); as fuel (old). "Towel" (old), "toilet paper" (old) and to clean shoes (new): the fibers are also used to press out the grated coconut meat (old); the juice of green, warmed husks and the crumbly material between the fibers of old husks are used to treat wounds (old); used for making children's toys (sailboats) (new?).

[352] [285] [372] 5. The palm leaves (lou niu): used, as is, to sit on in the bush (old); used to make floor mats (takatapu) (old), fans (old), baskets (old), hats (for example, helemeti and tata faka-polis) (new); needed to make house walls and roofing (old); used in dry form as fuel (old).

[285] [287] [412] 6. The center rib of the leaflets (tu'a niu): used in plaiting baskets (old) and fans (old) and in making tapa stencils (see p. 328); used in making brooms (old).

[482] [372] /163/ 7. The leaf stems (tome): used as carrying sticks (see p. 250) (old); in dry state as fuel (old); also used to keep fire going (smoldering leaf stem wound with tapa) (old).

[287] [415] 8. The bast fiber at the base of the leaf stem (kaka 'i niu): used to make tapa stencils (under side) (old) and as a bag for squeezing medicines and food (old).

[313] 9. The wood or the trunk (sino oe niu): used to make rafters and roof laths (old); used as posts and beams in houses (old?), as single posts on the plantations and for palisades (old).

[208] 10. The bark (kili oe niu): used to make medicines (for stomach pains) (old).

[229] [278] 11. The roots (aka oe niu): used to plait fish baskets (traps, finaki) (old) and to make cuttle fish hooks (tailpiece) (old); the juice of roots serves as medicine for abdominal pains and headaches (old).

it maybe designated as the most useful plant of the /163/ Tonga Islands.

245 Cook reports that he came across coconut palms on Tongatapu "in astonishing numbers." (427)

427. J. Cook, Beschreibung...loc. cit. VI. p. 237.

287 /217 cont./
292 also no longer used as a sign of taboo. (569)
[784]
[198]

569. Still mentioned, for example, in Martin, loc. cit. II. p. 233.

[513] But at any rate the Tongans use tapa today, as in the past, largely as a sleeping pad (on the mats) and also especially as bed covers. At festive and solemn occasions, especially at a wedding and a burial, [752] bast cloth plays an important role, rooted in tradition. For dances the natives still like to wear tapa clothing; and finally, as in old times, strips of white bast cloth are used as bandages for wounds.
287 Apparently recent is the widespread use of tapa as a curtain inside
353 the dwelling where it partitions off parts of rooms, replacing the
198 movable interior walls (standing mats) formerly used for this purpose.

Today, in Tonga, tapa is made in the following way:

248 The paper mulberry tree (Broussonetia papyrifera) is planted specifically for making bast cloth. Men (sometimes also women) plant saplings on land that has been cleared of weeds (also in an old harvested yam field). While it is growing, the women remove the weeds that shoot up and break off the sprouting twigs from the saplings, so that the latter will grow quite tall. When the little paper mulberry trees (hiapo) have become tall enough, that is, after one or two years, the women (sometimes also the men) cut the small trunks with a machete or an axe.

287 They take the small trunks to the village and keep them in the house for three to six days so that the bark loses its stickiness. Then, with their teeth, the women notch the layer of bark at the lower end of the little tree about five centimeters lengthwise, and, with their hands, vigorously pull off the entire layer around the trunk in a single strip. On the inner side of this layer of bark is the bast needed for tapa-making. This they remove from the bark by separating it from the lower end with a machete (or a kitchen knife) and pulling